

**REMARKS**

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

In the specification each of the following paragraphs indicated as starting at a particular portion of the specification have been amended to correct a spelling error: Page 17, Line 11; Page 16, Line 17; Page 16, Line 12; Page 8, Line 11; Page 7, Line 9; Page 6, Line 9. Additionally, Figure 8 of has been amended to correct a spelling error. Support for the amendments may be found in the specification as filed.

Claims 1, 4, 5, 6, and 9-15 are currently amended. Claims 16-19 are newly added. Support for the claim amendments and new claims may be found in the claims and specification as originally filed.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claims remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-15 are now pending in this application.

**Claim Objections**

Claims 11 and 14 are objected to because of informalities related to whether the claims are “method claims” or “computer readable medium reciting program to be executed to produce outcome claims.” Also, claims 12, 13, and 15 are objected to because the “examiner does not follow the dependence of claims whether they belong to a computer readable medium or a method type claims.” Applicant has amended the claims. Applicant submits that the claims as amended are directed to “computer readable medium reciting program to be executed to produce outcome claims.” Accordingly, Applicant respectfully requests that the objection to claims 11-15 be withdrawn.

Claims 5, 10, and 15 are objected to because the word “remainder” is misspelled in the claims. Each of claims 5, 10, and 15 have been amended to correct the misspelling. Applicant thanks the Examiner for noting the misspelling and respectfully requests that the objection be withdrawn.

### **Claim Rejections – 35 U.S.C. § 101**

Claims 6-10 were rejected under 35 U.S.C. § 101 for allegedly being directed to non-statutory subject matter. Applicant respectfully disagrees with the rejection for the reasons that follow.

35 U.S.C. § 101 recites four categories of patent-eligible subject matter: processes, machines, manufactures, and compositions of matter. *See In re Bilski*, 2007-1130 (en banc) (Fed. Cir. October, 30 2008). Here, the issue involves what the term “process” in § 101 means and whether claims 6-10 are new and useful “processes.” According to the Court in *Bilski* the relevant questions are whether:

- (1) the claimed process is tied to a *particular machine* or *apparatus*; or
- (2) the claimed process transforms a *particular article* into a *different state* or *thing*.

*Id.* at 10.

Applicant submits that while the Examiner has correctly identified the recently pronounced test by the Federal Circuit, the Examiner’s application is erroneous and improper. Contrary to the Examiner’s assertion, claims 6 and 9 are both tied to particular machines and apparatuses.

Claims 6-10 are method claims. Independent claims 6 and 9 are directed to “A reference signal allocation method performed by a radio cell station apparatus in a mobile communication system.” Among other limitations, a radio cell station apparatus, a mobile communication system, a neighboring cell station, and a terminal device are recited in claim 6. Clearly, at least the radio cell station apparatus, neighboring cell station, and terminal device are machines. Further, the claim features of claim 6 recite “searching by the radio cell station apparatus for a reference signal sent along a radio frequency already used in a

neighboring cell station,” “storing by the radio cell station apparatus said reference signal detected,” as well as “allocating by the radio cell station apparatus, when a connection request is received from a terminal device, a reference signal different from said reference signal stored.” Accordingly, the claimed method steps are at least tied to a radio cell station apparatus, a neighboring cell station, and a terminal device. Because claim 6 is tied to at least the particular machines of a radio cell station apparatus, a neighboring cell station and a terminal device, claim 6 satisfies the requirements of § 101. Similarly, claim 9 recites features that are tied at least to the particular machines of a radio cell station apparatus, a terminal device and a cell station, and therefore also satisfy the requirements of § 101 under the machine-transformation test. Indeed, both of claims 6 and 9 under their broadest possible construction require the use of an machine or apparatus. Accordingly, Applicant requests that the rejection be withdrawn and claims 6-10 be allowed.

**Claim Rejections – 35 U.S.C. § 112**

Claims 11-15 are rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. More specifically, the Examiner asserted “[t]he instant specification provides for a ‘program’ and a ‘computer’ however fails to provide for any ‘computer readable medium’ as presently claimed.” Office Action, ¶ 2, at page 3.

First, Applicant directs the Examiner’s attention to the M.P.E.P. which explains that claims directed to “computer readable medium” are proper. § 2106. Further, the Examiner notes and Applicant agrees the specification of the Present Application discusses both a “computer” and a “program.” Office Action, ¶ 2, at page 3. By way of example, at least one portion of the specification discusses “the program is performed for a computer” to execute the steps as recited in claim 11. Present Application, Page 7, Lines 13-20. Accordingly, Applicant respectfully submits that one of “ordinary skill in the art” would understand the program executed in a computer as discussed in the specification to be stored on a “medium” in the computer, as claimed in claim 11. A similar example may be found for independent claim 14 in the specification at Page 8, Lines 2-10. Accordingly, Applicant asserts the specification supports Applicant’s possession of the claimed subject matter of claims 11-15 at

the time the application was filed, and respectfully requests that the rejection of claims 11-15 be withdrawn.

**Claim Rejections – 35 U.S.C. § 102**

Claims 1-4, 6-9, and 11-14 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 6,178,329 (“Chao”). Applicant respectfully traverses the rejection for the reasons that follow.

Applicant relies on M.P.E.P. § 2131, entitled "Anticipation -- Application of 35 U.S.C. § 102(a), (b) and (e)" which states, "a claim is anticipated only if each and every element set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Applicant respectfully submits that Chao does not describe each and every element of independent claims 1, 4, 6, 9, 11, and 14.

Independent claims 1 and 4 are directed to “A radio cell station apparatus in a mobile communication system.” Independent claims 6 and 9 are directed to “A reference signal allocation method performed by a radio cell station apparatus in a mobile communication system.” Independent claims 11 and 14 are directed to “A computer readable medium containing program code which, when executed, causes a radio cell station apparatus in a mobile communication system to execute a reference signal allocation method.” Independent claim 1 recites, in combination with other features “search means for searching for a reference signal sent along a radio frequency already used in a neighboring cell station.” Independent claim further recites the features of “storage means for storing the reference signal detected by said search means,” as well as “reference signal allocation means for allocating, when a connection request is received from a terminal device, a reference signal different from the reference signal stored in said storage means.” Independent claims 4, 6, 9, 11, and 14 each recite similar limitations.

The purpose of the “reference signal[s]” as claimed is to facilitate “accurately transmitting signals to allocated slots in order to avoid overlapping of the signal with other user’s transmission.” Present Application, Page 2, Lines 2-4. Such accurate transmission is useful as “[i]n both TDMA system and the SDMA system, a time period (1 frame) using one

frequency is divided into several time slots so as to allow each user to use different time slot.” Present Application, Page 1, Line 28 – Page 2, Line 2. Accordingly, in PHS (which utilizes TDMA) “synchronous position detection utilizing what is called correlation synchronization has conventionally been known as a method of locating a synchronous position of a signal received from a personal station (hereinafter, referred to as ‘PS’) in a cell station (hereinafter, referred to as ‘CS’).” Present Application, Page 2, Lines 5-8. “Correlation Synchronization” is implemented “in view of the fact that a reception signal from a PS includes in each frame a reference signal (a unique word signal: UW signal) section consisting of an already-known bit string common to all users.” Present Application, Page 2, Lines 11-14. Accordingly, “a CS calculates correlation of an already-known waveform of the reference signal stored in a memory in advance and a waveform section cut out while shifting the waveform of a reception signal from the PS having a prescribed length.” Present Application, Page 2, Lines 14-16.

In contrast, Chao does not teach, suggest, or disclose each and every limitation of independent claims 1, 4, 6, 9, 11, and 14. More particularly, Chao is directed to “the efficient use of the radio spectrum in wireless communications.” Chao, Abstract. Accordingly, Chao discloses that “[c]hannel occupancy data and channel availability data concerning a specific base station and its neighbors are used to assign frequency channels to mobile units and/or base stations.” *Id.* Further, in Chao “[t]he channel occupancy and availability data may be located at a base station or at a mobile switching center,” and “[c]hannels are preferably assigned as channel pairs.” *Id.* In other words, Chao is directed to effectively and efficiently “assign frequency channels to mobile units and/or base stations” based on knowledge of the channel occupancy and availability data “concerning a specific base station and its neighbors.”

Accordingly, Chao fails to teach, disclose, or suggest at least the features of “search means for searching for a reference signal sent along a radio frequency already used in a neighboring cell station,” “storage means for storing the reference signal detected by said search means,” and “reference signal allocation means for allocating, when a connection request is received from a terminal device, a reference signal different from the reference signal stored in said storage means,” as claimed in independent claim 1.

More specifically, in the Office Action the Examiner asserted “col. 4 lines: 11-36, col. 5 lines: 41-60, Chao et al. teaches search means and more like receiving means about neighboring base stations information about signals used in said neighboring cell.” Office Action, ¶ 2, at page 4. However, application respectfully submits that the “storage means” and “receiving means” identified by the Examiner are directed to “channel pair occupancy data 302 and channel pair availability data 304.” See Chao, Col. 5, lines 42-47 (“The table 300 is located in the storage device 230 of FIG. 3. The ACO table 300 includes channel pair occupancy data 302 and channel pair availability data 304 for base station 112 and its neighboring base stations, 120, 122, 124, 126, 128, and 130, where its ‘neighbors’ are defined by a 1-cell buffering or 1-base station buffering reuse constraint.”) (Cited by Examiner). As discussed previously, Chao is directed to effectively and efficiently “assign[ing] frequency channels to mobile units and/or base stations” based on knowledge of the channel occupancy and availability data “concerning a specific base station and its neighbors.” Signals are transported over radio frequency (RF) channels by various means. Accordingly, Chao is directed to the efficient assignment of frequency channels, while the claimed feature of “search means for searching for a reference signal sent along a radio frequency already used in a neighboring cell station,” is directed to searching for specific signals sent along already assigned frequency channels. As such, “channel availability” and “channel occupancy” data utilized by the system in Chao are not “reference signals,” as claimed.

Further, in the Office Action, the Examiner asserted “col. 4 lines: 37-56, Chao et al. teaches memory in apparatus of base station,” in reference to the claimed feature of “storage means for storing the reference signal detected by said search means.” Here again, Applicant respectfully indicates that Chao is directed to the fundamentally different task of efficient assignment of frequency channels. In Chao, the “data storage device 230” contains within it information as to whether “channel pairs have been assigned by base station 112.” Chao, Col. 4, Lines 53-55 (Cited by Examiner). For example, the Examiner’s attention is directed to Fig. 4A which shows an exemplary ACO (Augmented Channel Occupancy) table. In Fig. 4A “The table 300 is located in the storage device 230 of FIG. 3. The ACO table 300 includes channel pair occupancy data 302 and channel pair availability data 304 for base station 112 and its neighboring base stations, 120, 122, 124, 126, 128, and 130, where its ‘neighbors’ are

defined by a 1-cell buffering or 1-base station buffering reuse constraint.” Chao, Col. 5, Lines 42-47. The purpose behind the table illustrated in Fig. 4A of Chao is to “indicate[] whether a specific base station is using one of eight channel pairs A-H”. Chao, Col. 5, Lines 48-49. As discussed previously, such “channel availability data” and “channel occupancy data” are not “reference signals,” as claimed. Accordingly, Chao fails to teach, disclose, or suggest the claimed feature of “storage means for storing the reference signal detected by said search means.”

Additionally, in the Office Action, the Examiner asserted “col. 6 lines: 55 – col. 7 lines: 27, Chao et al. teaches when request is made by mobile device channel availability data would be updated, hence, storing different reference signals in storage means of base stations,” in reference to the claimed feature of “reference signal allocation means for allocating, when a connection request is received from a terminal device, a reference signal different from the reference signal stored in said storage means.” Applicant respectfully submits that the updating of “availability data” is not allocation of a “reference signal,” as claimed. As previously discussed in detail above “channel availability data” and “channel occupancy data” are not “reference signals,” as claimed.

Accordingly, Chao fails to disclose at least the claimed features of “search means for searching for a reference signal sent along a radio frequency already used in a neighboring cell station,” “storage means for storing the reference signal detected by said search means,” and “reference signal allocation means for allocating, when a connection request is received from a terminal device, a reference signal different from the reference signal stored in said storage means,” as claimed in independent claim 1. Rather, as discussed in detail, Chao is directed to effectively and efficiently “assign frequency channels to mobile units and/or base stations” based on knowledge of the channel occupancy and availability data “concerning a specific base station and its neighbors.”

Thus, Applicant respectfully requests that the rejection be withdrawn and independent claims 1, 4, 6, 9, 11, and 14 be allowed. Moreover, dependent claims 2-3, 7-8, and 12-13 depend from one of independent claims 1, 4, 6, 9, and 11 and should be allowed for at least the reasons set forth above as well as further patentable limitations cited therein.

**Allowable Subject Matter**

Claims 5, 10, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims, and the 101 and 112 rejections are overcome. Applicant thanks the Examiner for indicating these claims are allowable. In response, Applicant has amended dependent claim 5 to include the features of independent claim 4. Applicant has amended claim 10 to include the features of claim 9. Lastly, Applicant has amended dependent claim 15 to include the features of claim 14.

Additionally, Applicant has addressed the § 112 rejections separately in the section entitled "Claim Rejections – 35 U.S.C. § 112" and § 101 rejections separately in the section entitled "Claim Rejections – 35 U.S.C. § 101." Accordingly, Applicant believes these rejections to each of claims 5, 10, and 15 should be withdrawn, and the claims should be allowed.

**Conclusion**

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

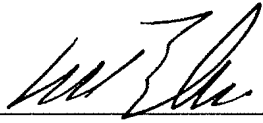
The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith,



Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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